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RESEARCH LETTERS

Polymorphous light eruption–like skin lesions in welders caused by ultraviolet C light

To the Editor: Ultraviolet C light (UVC) photosensitivity is a rare phenomenon.¹⁻⁵ UVC radiation cannot penetrate the ozone layer, and therefore normally does not occur on the surface of the earth. However, there are certain instances in which UVC radiation is generated on the earth's surface, one example being welding.

Welding generates UV radiation mainly in the UVC region. Welders are usually well protected against this UV radiation by means of a welding helmet and protective clothing. However, these helmets and clothing are often inconvenient, and welders are therefore tempted to do some of their work without proper protection. Exposure to UVC radiation does occur and it can lead to erythema. Because these symptoms are usually mild, they generally do not constitute a problem. However UVC photosensitivity may develop in rare cases.¹⁻⁵ Between 1997 and 2007, four patients who were suspected of UVC photosensitivity were referred to our clinic.

All four patients were male (32 to 45 years of age) and each had been working as a welder for several years. Patient 1 experienced an increase of preexisting erythema with itchy erythemtopapular rash in the face during welding, which decreased after 1 day (Fig 1). Patients 2, 3, and 4 developed erythemtopapular skin lesions on exposed skin, within 2 to 3 hours after welding which disappeared after 12 to 48 hours. None of the patients suffered from eye inflammation. There were no signs of actinically damaged skin. There was no history of previous photosensitivity, the topical



Fig 1. Erythemtopapular rash of the face (patient 1).

application of skin care products, drug intake, or internal diseases. Patch testing with the European standard series revealed no abnormal reactions. Phototesting was performed in all patients. The phototesting procedure used has been described previously.⁵

The minimal erythematous dose (MED) for UVC was only lowered in patient 1 (4 mJ/cm²), but in this case photosensitivity was evident, the MED being 4 times lower than normal. The average MED for UVC in patients 2, 3, and 4 was 21.2 ± 3.8 mJ/cm² (normal range, 10-25 mJ/cm²). Provocation tests showed itchy papular, pathologic reactions in all patients. Patients 1, 2, and 3 reacted mainly to UVC. Patient 4 reacted mainly to ultraviolet B light, but also showed a slightly pathologic reaction to UVC (Table I). The

Table I. Phototesting results

Patient no.	Age, y	Minimal erythema dose	Provocation
1	36	UVC ↓*; UVB, UVA, and VL normal	UVC papular reaction; UVB, UVA, and VL normal
2	42	UVC, UVB, UVA, and VL normal	UVC, UVB papular reaction; UVA slightly papular reaction; VL normal
3	45	UVC, UVB, UVA, and VL normal	UVC, UVB papulovesicular reaction; UVA, VL normal
4	32	UVC, UVB, UVA, and VL normal	UVB papular reaction; UVC, UVA slightly papular reaction; VL normal

UVA, Ultraviolet A light; UVB, ultraviolet B light; UVC, ultraviolet C light; VL, visible light.

*Minimal erythema dose UVC = 4 mJ/cm² (normal range, 10-25 mJ/cm²).

same procedure of repeated exposure in 20 volunteers only showed erythema and no papular reaction.

We advised protective clothing in all cases. In the case of indirect reflection from welding in the vicinity of a patient who was not wearing a welding helmet himself at the time, the use of a sunscreen was also advised. These preventive measures proved to be sufficient for all patients, and no hardening therapy was necessary.

The differential diagnosis of photosensitivity in adult patients includes classic polymorphous light eruption caused by UVA/UVB, drug-induced photosensitivity, and solar urticaria.⁶ In the patients described, there was no history of photosensitivity suggestive of classic polymorphous light eruption, nor did any of the patients use medication. The absence of an urticarial aspect and the duration of the complaints make solar urticaria unlikely.

UVC photosensitivity has been described before in nine out of 110 PLE patients, but to our knowledge, this is the largest series ever described of welders with a UVC photosensitivity.⁵ The literature on UVC-induced photosensitivity in welders is scarce, and the supposed photosensitivity is not always demonstrated by phototesting.¹⁻⁴ UVC photosensitivity is a rare cause of occupational dermatosis which can easily be misdiagnosed. Our results show that phototesting, which should include UVC testing, can contribute to a proper diagnosis.

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Presence and persistence of human papillomavirus types 1, 2, and 4 on emery boards after scraping off plantar warts

To the Editor: Surface-mediated infectious disease transmission is a major concern in various settings, including the management of patients with common warts. Cutaneous viral warts are mainly caused by human papillomavirus (HPV) types 1, 2, and 4.^{1,2} The most commonly used treatments by physicians are cryotherapy with liquid nitrogen or the daily application of salicylic acid.³ It is remarkable to note that the regular scraping of cutaneous warts before treatment is most often recommended by professionals. Because emery boards are often used at home, we raised the hypothesis of its possible contamination by HPV that might favor viral persistence in warts leading to cutaneous recontamination and treatment failure.